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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

46148

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REPORT FOR THE WEEK ENDING JULY 1, 1939.

HAVRE:

Precipitation at the beginning and also at the end of the week brought the total for June to 4.43 inches, recorded on 22 days, making this a very favorable month for all crops. Higher temperatures greatly benefitted corn, which made its first real progress of the season.

Cultivation of fallow and hoeing weeds were the chief activities in the experimental field. Marquis wheat is heading with excellent stands. A number of varieties of wheat, oats, and barley in nurseries and other projects are also heading. Prospects now appear excellent for large yields.

With favorable working conditions on four days, considerable progress was made in putting up the first cutting of alfalfa, long delayed on account of rainy weather. However, the yield is good and the quality of hay satisfactory. Range species, including needle grass, blue joint, and blue grama grass are heading. Forage and feed supplies should be ample for normal requirements.

Station visitors included M. F. Hansmeier, Extension Conservationist, Montana State College; R. W. Peake, in charge of grass research, Dominion Experimental Station, Lethbridge, Alberta; and E. G. Davis and F. D. Butcher of the U. S. Entomological Laboratory, Bozeman, Mont.

Maximum temperature, 89°; minimum, 43°; precipitation, 0.67 inch.

JUDITH BASIN:

June with 4.11 inches of precipitation was the first month of this year to exceed the station monthly average. The monthly mean temperature and average monthly wind velocity were below average.

Warmer weather has stimulated the growth of crops. Continued work in the fields has been possible this week. Rotation plots were rod weeded, roadways duckfooted, and hay plots clipped. Some bulk plots and grass roadways were cut, and cutting of forage plots for hay was started.

Notes were taken on the 1935-38 South Bench seedings of crested wheatgrass on abandoned land. The test emphatically shows the advantages of fall seedings during the drier years.

Corn continues to be slow in growth and is not over 8-10 inches high.

Maximum temperature, 83; minimum, 36; precipitation, 0.08 inch.

HUNTLEY:

Good growing conditions prevailed during most of the week, and all crops responded vigorously. With the exception of one night, temperatures were about up to normal for the season, which was especially favorable to corn and other late-growing crops previously retarded by cold and wet weather. Winter wheat on most plots is beginning to turn, in which respect it is more advanced than winter rye.

The principal field operations during the week centered around haying. Rye, Michal's grass, crested wheatgrass, and alfalfa were cut and stacked. The quality was exceptionally good. Cultivation operations for weed control were continued. Hogs on the pasture experiments were weighed, and the animals grown on the alfalfa plots were removed and sent to market in a finished condition from the pasture lots.

Maximum temperature, 92°; minimum, 39°; precipitation, trace.

SHERIDAN:

Fair weather with temperatures slightly above the average for the season prevailed over the most of the week. One light shower appeared to be of some benefit to late sown forage and to native grass pasture. Crop growth continued good with the exception of a few plots that began to fire.

Some corn was cultivated, all the fallow was disked, and all grass hay and the alfalfa south of the highway were cut. Crested wheatgrass and brome appeared to have made a greater recovery from the early spring drought than alfalfa. Corn was thinned to stand.

The average temperature for June was nearly 4° below the station average for the month, the coolest June since 1928. Precipitation was 0.70 inch above the average for June, but except for 0.71 inch received as a part of the rain of the last of May, the most of it came only in small amounts and was largely lost in evaporation.

Maximum temperature, 87°; minimum, 43°; precipitation, 0.40 inch.

DICKINSON:

Light showers on three days amounted to 0.32 inch. This increased the precipitation in June to 4.46 inches and the total for the year to June 30 to 10.54 inches, a little more than was received in either 1938 or 1937 and 2.22 inches above normal. June temperature of 57.4° was slightly lower than that of May. This was the coolest June since 1924. Evaporation of 4.604 inches was the lowest for the month for several years.

Ample moisture and cool weather during the month has induced a rank, leafy growth on good tillage methods. Plots of Gopher oats on the rotations are nearly headed and average 3 to 3½ feet high. Pilot wheat will average 3 to 4 feet when headed. Present condition promises yields well above average. Yields will depend on the amount of rain during the next three weeks as well as the amount of injury done by hoppers. Spreading of poison has continued, but kills have been only light. Several plots on the Normal School field were dusted with Dutox to try to stop the hoppers which have moved in from surrounding grass areas.

Corn grew rapidly during the week but is still backward.

Trees have made a good growth this spring. A good deal of dead wood has been removed from the windbreaks , although killing was not heavy during the winter.

Fruits have made rapid growth. Most varieties have a fair to heavy set of fruit which appears to be larger than average at this date.

Potatoes have grown rapidly and promise good yields.

Visitors included Mr. R.W.Peake, Experimental Station, Lethbridge, Alberta, and J. A. Clark, Cereal Crops and Diseases.

Maximum temperature, 84°; minimum, 43°; precipitation, 0.32 inch.

MANDAN:

Agronomy - Rains during the past week again delayed haying and wet hay that was down.

July 1 fallow plots were plowed, and all fallow plots were duckfooted.

All small grain is in excellent condition at present. Corn has improved greatly during the past week to ten days.

Temperatures continue cool for this time of year.

The total rainfall for June was 4.65 inches, compared to the 25-year average 3.18 inches, and the 60-year average of 3.36 inches for this area. The total precipitation for the year to May 31, was 9.05 inches, compared to the 25-year average of 8.25 inches and the 60-year average of 9.13 inches. The rainfall at the pasture for June was 5.82 inches. The rainfall for the week came in four showers.

Maximum temperature, 83°; minimum, 49°; precipitation, 0.82° inch.

Cooperative Grazing Experiment - Pastures are all in excellent condition for grazing at present. Crested wheatgrass is far ahead of the steers in both pastures, and will mature before it can be used. Native vegetation is the best for grazing that it has been for a number of years. There are few weeds showing up this year. The volume of growth of the native vegetation is not so great (except for blue grama grass) as it has been in some other years, but the quality is high. The early drought cut down the volume of production.

The steers have put on good gains on all pastures since the season started. The table following shows the steer gains for May, June, and the season to date. Pastures were not in the best condition for grazing in May, as they were dried up in places until after the good rain of the 23rd.

Gains of Yearling Steers

Pasture	Steers	Gain in pounds per head		
Acres	Number	May*	June	50 days
100	10	51.5	66.0	117.5
70	10	44.5	73.0	117.5
50	10	56.0	67.5	123.5
30	10	56.5	63.5	120.0
70 (Rotation)**	14	40.4	78.9	119.3
7 (Cr. wheatgrass)	4	46.3	93.8	140.0
12½ (Cr. wheatgrass)	6	51.7	88.3	140.0
93 Reserve	6	42.5	67.5	110.0

*20 days in May. **On 23 acres during this period.

Horticulture - Juneberries were picked on July 1. Success yielded a good crop, unpruned bushes yielding more than pruned bushes. None of the selections showed outstanding merit this year.

Work during the week included staking and tying budded material, cutting dead wood out of orchards, and cultivating.

Vegetables are now making slow but steady growth. Alaska peas were first picked on June 26, and then again on the 29th. Danamerica and Burpecana cauliflower are heading up nicely as are also the green sprouting broccoli varieties.

Earliana varieties of tomatoes so far are way head of other varieties in the test plots as far as earliness is concerned.

Blister beetles have been rather troublesome this season, necessitating frequent spraying and dusting with insecticides. A new compound, Dutox, seems more effective in getting rid of this pest than the usual spraying with arsenate of lead employed in other years.

Hybrid rugosa roses are still making a good show on the grounds. Varieties Hansa, Thomas Lipton, New Century, and Amelie Graveraux are the outstanding ones so far.

Arboriculture - Cultivation and hoeing in nursery fields has been carried on during the week. Growth has been somewhat more rapid than previously, but all seedlings are backward in growth. Blister beetles continue heavy defoliation of Siberian pea-tree seedlings.

A number of farm windbreaks have been visited in North Dakota the past 10 days. Plantings having an age of 10, 15, or 20 years were found in good condition and having high survivals. Plantings set out in 1935 were found to be very poor or complete failures, indicating the difficulty of establishing trees in years of unfavorable moisture. Plantings set out in 1939 are showing good survivals but are backward in growth.

A grass conference and agronomic field day was held in Mandan June 28 and 29. The program was in the charge of Mr. Wilkie Collins, Jr., Agronomist, SCS, Lincoln, Nebr. A large part of each day was spent at the Field Station studying tillage and cropping practices, pasture and grass experimental work, moisture conservation practices and studies, SCS grass plots, and grass breeding and selection. There was an attendance of over 70, including several from Canada.

BELLE FOURCHE:

Moderately warm weather prevailed throughout the week, and 0.21 inch precipitation was received in a downpour of a few minutes duration on June 27. The storm was much heavier several miles west of the station, where over 2 inches precipitation were received, but hail did extensive damage to crops, and a high wind uprooted trees and damaged buildings. There was only a trace of hail at the station.

Small grain on the rotation field made a vigorous growth, but was badly bruised by the strong wind on June 27. Most of the available moisture in the soil has been exhausted, and crops will commence burning if rain is not received within a few days.

There has been a sudden increase in the numbers of winged grasshoppers, but no migratory flights of the pests have been observed. Grasshoppers are not so numerous as they were this time last year, and distribution of poison bait has been more effective in controlling the pests.

Field work included plowing sweetclover sod and green manure plots; cultivating corn, sorgo, and alleyways; duckfooting fallow plots and roads; and distributing poison bait.

J. A. Clark, Cereal Crops and Diseases, visited the station on June 30.

Maximum temperature, 92°; minimum, 50°; precipitation, 0.21 inch.

ARCHER:

The weather during the week ending July 1 was warm and, for the most part, clear with threatening thunderstorms at times. Some localities received beneficial amounts of rain, but generally this region is dry. The total precipitation for June was 1.46 inches which is 0.44 inch less than the 26-year average. To date the season's precipitation is 1.50 inches less than the 26-year average.

Wheat, oats, and barley are heading. A good rain would greatly increase the number of heads. Corn is making a good growth, and the second seeding of beans has emerged.

During the week the corn in the rotation plots was cultivated and is now being hoed. The millet plots were reseeded. The tillage treatments of the pastures and pasture plots is in progress.

Director W. L. Quayle, J. Allen Clark, and Miss Ellen Feusner, Laramie County Demonstration Agent were station visitors during the week.

Maximum temperature, 91°; minimum, 47°; precipitation, 0.26 inch.

NORTH PLATTE:

Two good showers fell during the week, bringing the total precipitation well above normal for the month. The precipitation for June was 3.85 inches or 0.70 inch above normal. The precipitation since January 1 totals 9.74 inches, which is 0.28 inch below the average for this period. Temperatures for the month were mostly moderate, but on one day the temperature reached 105°. This is the second high record for June since 1907.

Corn has been making good growth during the past week and is now over knee high. With the exception of the spring wheat, all harvesting has been completed. Harvesting this year was completed at about the average date that harvesting usually begins. The oats will give a very good yield; some winter wheat on fallow will yield from 30 to 35 bushels, but on cropped land yields will be as low as 5 bushels per acre; the barley is only fair and will be light in bushel weight.

D. E. Stephens, J. Allen Clark, and F. A. Coffman visited the station during the week.

Maximum temperature, 90°; minimum, 57°; precipitation, 1.02 inches.

AKRON:

Rotation barley plots were harvested Monday and the oats Tuesday. The binder did a very poor job of cleaning the sparsely scattered, and short-strawed head covering of the barley plots, but much better with the sprangled heads produced by the equally short statured oats. Current harvesting was quite well attended to in the nursery, the variety experiments, and the increase plots of grain. Winter wheat alone of all the cereals was arrested in its premature ripening by the rains the later part of June. This crop will be about ready to harvest Wednesday when work is again resumed.

June passed with but 1.41 inches of precipitation. The yearly precipitation shortage is now 2.26 inches, and that for the season since April is 3.13 inches. This meager seasonal precipitation has been quite faultily distributed.

A trip Wednesday across country to Haxtun and back another way revealed crop conditions quite uniformly poor, as in the vicinity of the station. More winter wheat had survived, but generally it did not promise more than 4 to possibly 7 bushels per acre. Three small neighborhoods were passed through where winter wheat on fallowed land promised to yield up to 20 bushels per acre. A large acreage of row crop, largely corn, was free of weeds and very promising at this time.

J. Allen Clark spent Tuesday at the station having been met by J. J. Curtis from Fort Collins. G. A. Wiebe spent Thursday afternoon inspecting barley plantings.

Maximum temperature, 93°; minimum, 50°; precipitation, 0.56 inch.

COLBY:

This week was fairly favorable for the ripening of small grains and for the growth of row crops. The temperatures were moderately warm during the day and fairly cool at night. Rain threatened nearly every evening, and there was not much wind. The rainfall in this vicinity was just enough to maintain a moist seedbed for the young sorghum plants to get well rooted.

Rabbits and grasshoppers continue very numerous. The damage to barley and wheat by the hoppers has been very heavy. Nearly all of the barley was cut unusually green to avoid almost complete loss. Much of the wheat is being cut with binders and swathers before it is ripe enough for the combine, to check the loss from hoppers. Frequent poisoning at the station has reduced the numbers considerably, but they are still thick.

The spring small grains were combined Thursday and Friday. The yields were low and the quality was poor. There were very few weeds, however. The yields of spring wheat ranged from 2.3 bushels on 4B and 5B to 5.7 on MC D and 6.0 on 8B (fallow) and averaged 3.7 bushels. The oats ranged from 2.2 bushels on 5B to 10.0 on MC D and 11.9 on 8A and averaged 6.1 bushels. The barley yields ranged from 1.9 on 7B to 6.3 on MC D and 6.9 on 360 B and averaged 4.5 bushels. The winter wheat will not be ready for two or three days.

Maximum temperature, 93°; minimum, 55°; precipitation, 0.58 inch. Precipitation for June, 1.56 inches; 52-year average, 2.80 inches. Precipitation, January-June, 1939, 9.27 inches; 52-year average, 9.03 inches.

HAYS:

The week has been cloudy and damp. The heaviest rain of the season occurred June 26 when 1.30 inches was recorded. This was accompanied by a trace of hail. The rain delayed harvesting that had not been completed in the vicinity but provided some additional moisture which is much needed for the feed crops.

The row and feed crops are making rapid growth and now look promising.

The grasshopper population, however, is heavy, and there is some question as to whether or not the corn will survive. At present these crops have suffered very little.

Maximum temperature, 94°; minimum, 61°; precipitation, 1.50 inches.

GARDEN CITY:

Moisture fell on five days this week, but it was measurable on only three days. The total was 0.69 inch. This wet the soil down to the replanted seed, which should germinate and come up. Two bad dust storms occurred. Each lasted only about one-half hour, for the dust was quieted by light showers. The month of June was 0.69 inch below average for rainfall. The total thus far this year is 6.07 inches, and the average is 8.71 inches.

The wheat plots which appeared to be worth cutting were harvested this week, but only a small yield was received.

Station visitors were C. O. Grandfield, Kansas State College; L. E. Wenger, Agent in Forage crops, Hays; and J. R. Swallen, Bureau of Plant Industry, Washington, D. C.

Maximum temperature, 94°; minimum, 59°; precipitation, 0.69 inch.

TUCUMCARI:

Agricultural conditions became steadily worse during the week, although temperatures dropped to normal. Precipitation for June was 0.30 inch, making the total for the first six months of the year 5.63 inches. Monthly temperatures, wind movement, and evaporation were above normal.

Heavy rains have been received in nearly all directions, with Amarillo, Tex. reporting over 8 inches in June. Wheat harvest has progressed rapidly in spite of short delays due to rain, and yields in the Texas panhandle and eastern New Mexico are higher than anticipated.

Ranges are drying fast, and row crops are making but little headway in the immediate vicinity of Tucumcari. Stands were not obtained on many early planted fields, and it is now too dry for replanting.

Station row crops are growing but slowly. During the extremely hot weather of mid-June many seedlings died on plots most deficient in moisture.

Maximum temperature, 97°; minimum, 58°; precipitation, 0.11 inch.

DALHART:

Three small rains during the week continued the favorable conditions for planting. The planting operation was continued during the week. A rain of 0.44 inch last night prevented planting today, otherwise the regular planting would have been completed this week except for a late date of planting experiment. There remains to be planted the milo disease nursery, the cowpea variety test, and several small miscellaneous areas. Stands are being secured in five days on material planted during the past ten days, emergence is showing in less time than that. The forage rotations, a grain sorghum nursery, a Resistant milo selections yield test, Sedan kafir nursery, a group of miscellaneous increase nursery selections, increase areas for use in bagging pure seed, and a series of feed-cover areas were planted this week.

Work other than planting consisted of picking a good crop of cherries, thinning some late emerged corn varieties, thinning the sorghum varieties on fallow, and plowing the late fallow plots.

Maximum temperature, 91°; minimum, 56°; precipitation, 0.85 inch. Total precipitation for June was 3.14 inches.

BIG SPRING:

Three rains during the past week totalling 2.03 inches have changed the crop prospects considerably. A slow rain of 0.53 inch was received June 26; this was followed by another of 1.41 inches on June 28. The latter was strictly a local rain covering a very small area from the station. It fell hard and in a very short period of time, which resulted in a large amount of run-off.

Precipitation for the first half of the year is practically normal; 8.85 inches as compared with a normal of 8.91 inches.

The winter wheat plots were threshed during the week. Yields were very light, ranging from failures to 3 bushels per acre. Sorghums and cotton are making a rapid growth since the rains, as are also the weeds. Thinning has occupied the time of the station force most of the week; during this time cotton, corn, broomcorn, and milo spacing were thinned.

Maximum temperature, 100°; minimum, 65°; precipitation, 2.03 inches.

LAWTON:

Widely scattered rains that varied from showers to heavy downpours fell in surrounding territory almost daily during the week ending July 1. Station records include 0.43 inch on the 30th and 0.15 inch on July 1. The June total of 3.30 inches lacked only 0.08 inch of being normal. The total precipitation from July 1, 1938, to June 30, 1939, was 15.99 inches, 52.77 per cent of normal for the period.

Growing conditions were optimum during the week. Cotton seems to have grown slowly, but a better response has been evident the past few days. Termites have been responsible for a little damage, but such injury is not extensive. Some of the early maturing varieties, planted June 16 were setting the first squares June 15. All other plantings made May 31 or later have progressed much slower in growth. Angular Leaf Spot, and what appears to be Leaf Curl are responsible for the subnormal growth and lack of normal plant development in practically all station plantings. Such damage as well as termite injury is rather severe on the Crop Weather Research cotton project. Cotton fields on surrounding upland farms is still very small and fields are generally quite weedy. Some of the creek bottom fields show very good growth.

Sorghum plantings present a rather sorry picture. One year ago at this time the earliest maturing sorghums were "first heading". Today, most of them are approximately 1 to 1½ ft. tall, many of them less than that, and there was only about 10 days difference in the time of planting. In the chinch bug sorghum resistance project a total loss has already been recorded on some of the plots. Dr. K. Starr Chester, head of the Botany and Plant Pathology Department, A. & M. College, Stillwater, identifies Fusarium moniliforme as responsible for about 2/3 of the injury, Sclerotium botaticola about 20 per cent, and a small amount due to Helminthosporium. These fungus diseases are also present in the kafir and feterita on the rotation plots, with intense injury confined principally to feterita. These diseases are quite widely spread in the State this year. As yet Pythium arrhenomanes (the so called milo disease) has not been found present on the station plantings. Observation to date indicates that in many instances there are plants highly resistant to the above mentioned diseases. A very heavy infestation of chinch bugs is present in all sorghum plantings. The sharp restriction in growth by root diseases make the crop an easy prey for insect injury.

Threshing of small grains except plots of wheat, oats, and barley from which planting seed must be obtained was completed during the week. Rotation yields were light, and the seed was of inferior quality.

WOODWARD:

The weather has been rather moderate the past week with no high wind velocity or high temperatures. Harvesting of wheat on the Station was completed early in the week, but over this section harvest is far from complete. Precipitation has again interferred somewhat with planting of row crops on the station and harvest of the surrounding territory. All early plowing and other preparation on the DLA plots following harvest has been completed. Other work during the week has consisted of cultivation of crops and other clean-up work.

A. T. Chisholm from College Station, Texas, who has been stationed here for the past several months, doing work on the hot water method of emasculation of grass has completed his project and is leaving.

Maximum temperature, 92°; minimum, 69°; precipitation, 0.87 inch.

PENDLETON:

Hot, dry, windy weather prevailed most of the week. Winter wheat and spring barley ripened rapidly. On the station spring grains in the roadways were cut for hay with the binder, and five varieties of canning peas were harvested for seed. The first wheat combine harvested was delivered to the warehouse on June 28, from western Umatilla county. Messrs. Thayer and Soo of the Food Industries Department, Oregon State College have been here all week processing freezer varieties of peas. Joe Belanger, SCS, Moro, Oregon, spent the week working on soil moisture and nitrate studies. V. B. Hawk, SCS, Pullman, Wash., was here most of the week taking notes and weights in the cooperative grass trials. Drs. Rodenhiser and Holton, Cereal Crops and Diseases, spent Friday and Saturday making counts in their smut race trials.

Maximum temperature, 101°; minimum, 36°; precipitation, none.

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JUL 8 - 1939

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REPORT FOR THE WEEK ENDING JULY 8, 1939.

HAVRE:

Moderate temperatures, clear skies, and no precipitation characterized the weather of the week. Haying and field work were uninterrupted, and many delayed operations were at last completed.

Weeds have been hoed from corn, potatoes, and beans in the experimental field. Corn in the DLA project received its second cultivation. Winter rye on fallow was harvested for hay, the field-cured yield being nearly 2.5 tons per acre, indicative of the amount of vegetative growth made by small grain crops this season. Sweet-clover plantings were also harvested, fair but not very large yields resulting. Plowing for July-fallow has been completed. Roadways were also cultivated, and considerable rogueing was done in connection with variety plantings and foundation seed stock.

The first crop of alfalfa hay is now in the stack, the quality being better than expected considering the long delay in harvesting because of rains during June. Strip fallow in field C received its second cultivation for weed control.

Visitors included R. T. Clark of the Animal Husbandry Department, Montana Experimental Station, and Ben Daggett, Hill County Extension Agent.

Maximum temperature, 88°; minimum, 45°; precipitation, none.

JUDITH BASIN:

Continued warm weather, low wind velocity, and scattered showers prevailed during the week.

Crops have advanced rapidly. Winter wheat in fields throughout the area is even with the top wire of the fences and makes a beautiful showing.

The warmer weather has rushed grass, and continued cutting of plots and fields has been necessary. Yields of grass appear somewhat lower than last year. With such large acreage of crested wheatgrass it is rather difficult to get the majority of it cut at the right stage. For quality and palatability it should be cut just prior to flowering.

The lateness of the season is emphasize by the fact that peonies have just come into full bloom.

Cattle in the pasture tests were weighed, and quadrats were clipped.

Maximum temperature, 83°; minimum, 43°; precipitation, 0.07 inch.

HUNTLEY:

Favorable growing weather continued throughout the week, and all crops showed considerable advancement. Corn, beans, and sorgos which have been somewhat retarded by relatively cool temperatures this spring, made the greatest progress. Winter wheat is ripening, and the early plots of spring grains are filling. The heavy growth of barley and spring wheat on the more productive tillage treatments is beginning to lodge. The second crop of alfalfa and crested wheatgrass is starting well.

Field work has consisted of cultivating corn and other row crops, hoeing fence lines, fencing pasture lots, and hauling in the last of the hay. Spring pigs in the annual-crop pastures were weighed and moved from the winter rye to the field peas plot.

Maximum temperature, 89°; minimum, 50°; precipitation, 0.04 inch.

SHERIDAN:

On the evening of the 2nd there was about 0.45 inch of precipitation in about 15 to 20 minutes, all of which was taken up by the soil with little or no run-off. About a half hour later another shower passed over leaving 1.15 inches of precipitation, including some hail, in about the same time. Washing was bad over all of the station where the top soil was not tied down by sod or a close seeded crop. Two more light showers and another heavy downpour lasting only a few minutes were recorded during the week. The last one, on the 6th, caused heavy washing again, although the precipitation was only 0.43 inch.

Leaves of corn north of the highway were badly shredded by the hail, but grain apparently was uninjured. Barley sown early in field G was lodged badly. Haying was in full swing over this section, and much hay was damaged by water and dirt washing down over it, including the best of the hay on the station. Nearly one-third of the grain sorghum seeding in field I apparently was destroyed, one part being washed out and another part being covered with mud. This was uncovered as much as possible, but it does not seem that it is likely to come through. It seems likely that erosion from washing on the station from the three storms of that type received this year (one early in the spring) was greater than throughout the period the station has been in existence previously.

Temperatures over the week were about normal for the season. Crop growth generally continued good, with some winter wheat and barley beginning to turn color.

Hail damage immediately east of Sheridan was much greater than on the station. Only the stubs of corn were left in some fields, and some grain was almost completely destroyed. Several fields of beets also were largely destroyed.

Maximum temperature, 89°; minimum, 49°; precipitation, 2.36 inches.

DICKINSON:

Rain on five days amounted to 1.71 inches. This was so distributed that nearly all of it went into the soil. With ample moisture and moderate temperature crops made rapid growth. The present condition of the small grains on the rotations still indicate possible yields well above average.

Since hoppers have started to move the outlook is uncertain. A few hoppers moved in on the 4th. On the 7th large numbers came in, traveling almost directly east. Today the movement is not quite so heavy and is in a southeasternly direction. The grain plots today have enough hoppers to destroy most of the crop if they remain and perform as they did a year ago.

Wheat, oats, and barley plots on the main field are being dusted today with barium fluosilicate (Dutox) applied at a rate of 5-6 pounds to the acre in mixture with three parts flour. It is not certain how effective this will be in reducing the number of hoppers, but it may act to some extent as a repellent. Earlier dusting on

a few plots seemed to reduce the injury, although few dead hoppers were found. Poisoned bait is also being spread, but it is not very effective in the tall, leafy grain. Some oats and barley are being cut for hay in the district. These grains are now in the milk stage of development on early seeded fields.

Stem rust which was first observed on winter wheat on June 28 has increased, but it apparently will be less severe than in 1938. About half of the wheat in the district is of rust resistant varieties this year.

Visitor included Dr. C. E. Leighty and J. M. Stephens.

Maximum temperature, 85°; minimum, 47°; precipitation, 1.71 inches.

MANDAN:

Agronomy - Rains during the past week further delayed getting up of hay that has been down for some time. Rainfall was recorded on four mornings, 0.57 on the 3rd, 0.07 on the 5th, 0.21 on the 6th, and 0.52 on the 7th. Severe hail damage was reported in some areas.

Corn was cultivated for the second time. It is making rapid growth at present.

Small grains have made a rank growth on fallow and show signs of lodging on some plots.

Maximum temperature, 87°; minimum, 57°; precipitation, 1.37 inches.

Cooperative Grazing Experiment - All pastures continue in excellent condition for grazing, and there is an abundance of feed in all of them.

Blue grama grass is headed out in spots. The heading is light compared to last year.

Horticulture - Currants, Juneberries, and Chinese cherries were picked during the week. The Juneberries yielded a good crop, Success being the highest yielder. Revelstoke, a variety from Canada, looks very promising. The white Juneberry yielded well, and the birds do not seem to eat it as much as other Juneberries. Currants yielded a fair crop, London Market being the highest yielder. Chinese cherries are bearing a light crop. Some of the selections look good, but none stands out as being decidely superior to the other. The orchard plantings look thrifty and vigorous after recent rains.

Vegetables are now beginning to mature in quantities. The cabbage family tops the list with green sprouting broccoli, cauliflower in variety, cabbage, including Golden Acre, Jersey Wakefield and Copenhagen Market. Chinese cabbage, variety Chihli, is excellent this year. Peas are continuing to yield well, and carrots and beets where germinated in due time, are ready for bunching.

Hedges in the field and on the grounds were sheared again during the week. Pruning of trees and shrubs was carried on and is now finished for the season.

Flowerbeds of Cannas and Geraniums have benefited greatly by the recent rains and are now furnishing a most welcome splash of color in their respective locations. Gaillardia, Coreopsis, Platycodon, Gypsophila, Delphinineum, Lilium housini, and Hemerocallis fulva, are at their height of bloom and making an excellent show in perennial borders and beds.

Dr. J. R. Magness, Division of Fruit and Vegetable Crops and Diseases, Washington, D. C., visited the station Thursday, July 6.

A group of farmers, accompanied by the County Agent of Perkins County, S. Dak., visited the station on the 7th.

Mr. John Haw, Development Agent, Northern Pacific Railway, visited the station today (Saturday) with a group of Northern Pacific officials.

Mr. John M. Stephens is leaving the station this evening with Dr. C. E. Leighty, for a field inspection trip covering the Northern District stations.

BELLE FOURCHE:

Warm weather prevailed throughout the week, and no precipitation of material benefit to growing crops was received. Three brief torrential showers, ranging from 0.12 to 0.42 inch precipitation, occurred There was considerable run-off during the two heavier showers, and the soil was not moistened to a depth of more than 1.5 inches.

Soil samples taken on wheat plots, July 6, showed all available moisture to be exhausted from the soil on spring plowed and fall plowed land. Small grain is burning badly on all cultural treatments except fallow, and most of it apparently will not make sufficient growth to produce straw. Crested wheatgrass and surviving alfalfa are suffering seriously from lack of moisture.

Dr. C. E. Leighty and J. M. Stephens visited the station early in the week.

Maximum temperature, 96°; minimum, 57°; precipitation, 0.88 inch.

ARCHER:

The weather during the week ending July 8 was warm and dry. No precipitation occurred at the station, but thunderstorms were observed at some distance.

Weather conditions were favorable for the corn, however, it rolled some during July 7. It, as well as all other crops, is in need of rain. Winter wheat is turning yellow, and harvesting at lower elevations is under way. Owing to grasshoppers, some of the green crops in this region are being harvested. Because of dry weather the grasshoppers and rabbits are moving in to feed on the green crops at the station. A considerable number of rabbits have been poisoned.

Station activities consisted of treating the Soil Conservation pasture plots and cultivating and hoeing corn.

Wayne Austin and Parley Keene of the Soil Conservation Service and Robert Wilson and Dave Davidson, California AAA State Committeemen, were station visitors.

Maximum temperature, 90°; minimum, 51°; precipitation, none.

NORTH PLATTE:

Very little precipitation fell during the week. Temperatures were moderate. The work of the week consisted principally of threshing the winter wheat. Yields were higher than anticipated, and the grain is of good quality. Some approximate yields were as follows: Wheat after fallow 30 to 35 bushels; after corn 25 bushels; after fall plowing 20 to 25 bushels; and after disked stubble 15 to 20 bushels. The low yield was from a plot of stubbled-in wheat which yielded 8 bushels, and the high yield followed fallow with 35 bushels per acre.

All the spring wheat has been harvested except two plots following fallow. Most of the spring wheat was very short and yields will be low. The corn is making a good growth. The grasshoppers do not appear to be as numerous as earlier in the summer, but now that the small grain is harvested, the hoppers are beginning to move into the corn plots.

Visitors during the week included Dr. K. S. Quisenberry, and G. T. Webster. The latter is an assistent State extension agronomist.

Maximum temperature, 98°; minimum, 55°; precipitation, 0.04 inch.

AKRON:

There were some local showers characterized by sharp lightning during the week but none of consequence at the station. There will be no more spring grains produced in this locality than in 1934. There however will be a very light crop of winter wheat, whereas it all winter killed that memorable year. The present season thus far has been very remindful.

Harvesting has been in full swing with no weather interference, and the week end finds this work about three-fourths completed. Winter and spring wheat on the rotation were harvested Thursday and Friday, thus completing this project. Nursery harvesting is more than half completed.

Early seeded corn is tasseling at about knee height. All corn is still showing good color but is curling sharply each afternoon. Sorghums made good growth during the week. Beans and millets have emerged to good stands. Grasshoppers remain a serious threat to all later maturing crops. Eight hundred pounds of poisoned bait was scattered mainly over the rotation project after the final harvesting.

Orrin J. Webster, Cerealist at the North Platte station, drove over Sunday bringing F. A. Coffman and Clyde Noyes, County Extension Agent at McCook. They were joined here by J. J. Curtis and spent the afternoon viewing station crops. Professor and Mrs. Alvin Kezer visited the station Sunday.

Maximum temperature, 100°; minimum, 57°; precipitation, 0.03 inch.

COLBY:

Typical harvest weather prevailed most of the week, except that March dust storms rolled in on three afternoons, which is something unusual in July. A very hot wind blew all day the 6th. Rain threatened on several evenings, but none fell, except a light shower the 2nd.

Harvest is drawing to a close. Yields were generally disappointing. Fields that looked like as if should yield upwards of 15 bushels to the acre are yielding less than 10. Very few exceptionally good fields yielded above 15 bushels. The highest yield reported by farmers was 25 bushels from a field about 20 miles southwest of here. The quality is surprisingly good, considering the low yield. The grains are shriveled, but the test weight seems to range above 57 pounds with some testing 60. The protein will probably average above 16 percent.

The harvesting of the winter wheat plots was finished yesterday. Sixteen of the plots had only scattering plants among a good stand of thistles and were not harvested. Among these was the four-year fallow.

The highest yield was 11.8 bushels on 151 C. The plots in rotations 151 to 156, except 153, were next to plots where Colby milo stalks stood all winter so that they caught a lot of snow. The weighing has not been completed, because the grain came through the combine damp due to green thistles going through, also.

Maximum temperature, 107°; minimum, 60°; precipitation, 0.11 inch.

HAYS:

The past week has been another dry and hot one with the maximum temperatures ranging between 94° and 111°.

The corn, which is from 6 to 14 inches high, rolls daily and is beginning to suffer considerably from drought. The corn may also be suffering from corn root rot of which there are symptoms, in that nearly 100% of all plants pulled and split show a dark pith from the root up to some distance in the stalk above.

The kafir and milo crops which are from 2 to 8 inches high are also beginning to suffer from the heat and drought. Pastures are brown and are drying up rapidly.

Grasshoppers are still numerous although there has been a heavy mortality due to frequent spreads of poison bran mash. Occasional colonies of blister beetles are now to be found in some of the fields. As a whole the outlook for the winter from the farmer's viewpoint is discouraging to say the least.

Most all of the initial tillage work for early seedbed preparation for wheat in fields A, B, and C has been finished, and row crops have been cultivated. Corn has been cultivated for the second time.

Maximum temperature, 111°; minimum, 61°; precipitation, 0.21 inch.

GARDEN CITY:

On five consecutive days this week the maximum temperature was 100° or more, the highest was 107°. Dust occurred on only one day, the afternoon of the 4th. Most of it came in from some distance south of here, however, there was some local blowing.

One of the worst grasshopper invasions in several years occurred on Thursday and Friday. They have done considerable damage to the Sudan grass and have done damage to the sorghums and cowpeas. Poison bran and the dozer is being used in an effort to control them.

Field work consisted of thinning sorghums and taking soil samples.

Maximum temperature, 107°; minimum, 68°; precipitation, none.

TUCUMCARI:

Favorable crop and range prospects which existed in May have steadily and rapidly vanished in this immediate locality. During the past 65 days only 1.04 inches precipitation were received; throughout the same period evaporation was 23.1 inches. Ranges are tinder dry, and row crops are making but little growth. No precipitation has been received this month to date, and the total of 0.30 inch in June came in four showers.

Drought, grasshoppers, and rabbits have thinned some station plots to a marked extent, although stands on the majority of plots are still surprisingly satisfactory. Only a small amount of thinning has been performed, for it is considered unsafe to thin to stand under present conditions. Increase land to be drilled to Sudan grass or sorghum has not been seeded; when rain comes this will all be seeded to Sudan grass in an endeavor to secure land protection from soil blowing.

Maximum temperature, 102°; minimum, 63°; precipitation, none.

DALHART:

Unless seasonal conditions makes replanting necessary, sorghum planting was completed during the week. There was planted this week a milo-disease nursery of some 120 selections, the late planting experiment, broomcorn varieties, cowpea varieties, and some miscellaneous planting. The June 1 date of planting of the sorghum varieties which showed insufficient stands was cultivated out and the area replanted to Sudan grass. Thinning of sorghums planted the last of June was a rush job during the week. Thistles have made rather vigorous growth this year. Although there is near normal precipitation for the year, grass and weeds show shortage of moisture between showers.

Except for the one test which is abandoned, good stands are expected on other plots.

Maximum temperature, 101°; minimum, 59°; precipitation, 0.21 inch.

BIG SPRING:

Continued hot weather prevailed during the week with the maximum reaching 100° or above nearly every day. Rainfall continues spotted over the county with some sections extremely dry. In fact some areas have not been able to plant any thing as yet. Cotton would be out of the question at this late date, but it is probable that considerable feed stuff could be matured if planted in the near future.

Station crops are making a very good growth at present, but the May 15 date of sorghums are rolling noticeable during the middle of the day. Thinning and cultivating have been under way during the entire week. With the exception of a little late planted cotton, all plots have been thinned and nearly all cultivated for the first time.

Maximum temperature, 104°; minimum, 65°; precipitation, none.

LAWTON:

Maximum temperatures from July 3 to 8, inclusive, varied from 100° to 107°, averaging 104° for the 6-day period. This period of heat with an average wind velocity of 6.2 miles per hour punished crops severely. With only a limited amount of soil moisture, retarded in growth by plant diseases, and injured by insects, sorghums and cotton are not capable of withstanding too much climatic punishment of this sort.

All the row crops were cultivated during the week, and plots that are to be seeded to wheat and barley in the fall were plowed.

A rather live interest is being manifested in basin listing this summer, and several farmers are tilling an appreciable acreage in that manner. Part of it will be seeded to wheat, oats, and barley this fall and the remainder will be fallowed.

WOODWARD:

The week was hot and windy with a temperature of 100° or above on four days. A nice slow rain of over an inch with practically no run-off fell early in the week. Since then, however, evaporation has been very high.

Most of the work during the past week has consisted of thinning and cultivating sorghum plots and threshing wheat and other small grain. The station pasture was mowed to control sage brush. Considerable mowing of sage brush was also done on two ranches north of town where some of this work is being done on a cooperative basis.

Some plums and the first peaches and tomatoes were picked during the week.

Maximum temperature, 103°; minimum, 64°; precipitation, 1.14 inches.

PENDLETON:

Harvest of small grains has started in most of the Columbia River Basin counties. A rain of 0.33 inch on July 3 was of some value to late spring wheat. Spring barleys ripened during the week, and some harvesting of this crop was done. Combine harvesting of crops on the station will probably start about July 15. A large part of the winter wheat in the cereal nursery was cut during the week. Messrs. Harvey and Tsu finished their work on peas Saturday and returned to Corvallis.

Maximum temperature, 91°; minimum, 42°; precipitation, 0.33 inch.

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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

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JUL 16 1935

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REPORT FOR THE WEEK ENDING JULY 15, 1939.

HAVRE:

Weather during the week was dry and warm, temperatures exceeding 90° on four consecutive days with a maximum of 100° on the 10th. Strong, drying winds, generally of short duration, damaged spring grains, broke over culms, and greatly reduced yield prospects. Precipitation totalling 0.40 inch on the 14th temporarily checked further damage.

Heavy flights of grasshoppers have been observed on several occasions, but for the most part have passed over without settling; however, enough are present to necessitate frequent poisoning, and both barley and oats are being damaged severely at present. Says plant bugs have begun their annual invasion into the west side of the experimental field, two to three insects being observed on each head of grain in the heavily infested areas.

Fallow was rod weeded, and hay was raked and weighed in the experimental field. Both spring and winter rye were cut for hay from the strips in field C. Alfalfa field received an irrigation and the second growth is now making excellent progress.

Visitors included Dr. C. E. Leighty and J. M. Stephens; A. J. Hill, Rural Electrification Engineer, Bozeman; A. W. Emerson, the Soil Conservation Service; and Fred Morton, U. S. Entomological Laboratory, Bozeman.

Maximum temperature, 100°; minimum, 50°; precipitation, 0.42 inch.

JUDITH BASIN:

The week was characterized by damaging hot weather. On six consecutive days the maximum temperatures were 90° or more with a high of 97° on Monday. Spring sown grains are showing signs of firing, and light showers have failed to revive the suffering wheat and oats. Winter wheat is in or approaching the milk stage.

Heading notes in the Cereal project were completed for spring wheat, barley, and oats. There has been as much as 60 percent lodging for some of the oats varieties in the row nursery.

Grasshoppers are at present causing cosiderable concern in the Lewistown area and eastward, and winds from the east have brought a few to this locality.

Forage plots cut for hay yields have been weighed, and cutting of bulk fields has continued during the week.

Quadrats on the 32 five-acre plots in the south bench seeding of abandoned land were staked and clipped.

Bromegrass in the pasture trials appears to be in the best condition of the three lots. Both native grass and crested wheatgrass are showing more effects from the hot weather and advancing season.

Visitors included U.S.D.A. Entomologists J. R. Parker and R. L. Shotwell from Bozeman; E. M. Spurlock, Farm Credit Administrator, Washington, D. C.; D. C. McMillan and R. M. Sauer, Farm Bank Appraisers of Lewistown and Great Falls; R. B. Tootel of the Federal Land Bank of Spokane; Professor A. H. Post of the Agronomy Department of the Montana State College; and the Agricultural Committee of the Lewistown Chamber of Commerce.

Maximum temperature, 97°; minimum, 51°; precipitation, 0.51 inch.

HUNTLEY:

Relatively high daytime temperatures throughout the week have been reflected in burning and hastened maturity of spring grains. Flax, barley, and oats have turned color and spring wheat is beginning to turn. Most plots of winter wheat are ripe enough to cut with a binder with the exception of the border rows which are still quite green. Corn has made a good growth during the week, and some of the earlier plants are showing tassel.

The drying up and maturity of range vegetation, along with the high temperatures of the last two weeks, have resulted in a rather active migration of grasshoppers from grasslands to crop fields, until the insects are present in injurious numbers throughout the experimental plots. To date no grasshopper damage is apparent, but with the cutting of grain crops followed by a concentration of the insects on plots of corn, beans, and alfalfa, some injury may be expected. A cloud of grasshoppers flying high passed over the station from east to west on the afternoon of the 13th.

Maximum temperature, 103°; minimum, 53°; precipitation, 0.08 inch.

SHERIDAN:

The hottest weather of the current season, considerably above normal, resulted in hastening maturity of the earlier grain and rapid growth of all late crops. There was no rain of any consequence during the week. Some deterioration in both the quality and yield of grain probably resulted also from the continued heat over the week.

All fallow was duckfooted, and all row crops were cultivated. Sheep were weighed yesterday(14th), and ewes with lambs were turned into Sudan grass pasture. Trebi barley sown March 24, Spartan sown April 11, and bromegrass for seed (both in Soil Conservation nursery rows and a bulk field) were harvested this morning. Bangalia field peas were harvested yesterday. A considerable part of the earlier sown spring grain and some of the winter wheat should be ready to harvest early next week.

Oscar K. Barnes and Kenneth Fiero of the Soil Conservation Service were at the station early in the week to lay out plots for clipping experiments with range grass.

Maximum temperature, 104°; minimum, 52°; precipitation, 0.07 inch.

DICKINSON:

Only one light shower fell during the week. Temperatures were high during the middle of the week with a maximum of 96°, the highest temperature recorded this year. Grains developed rapidly. Some plots ripened too fast because of lack of moisture. Early oats, barley, and rye will be ready to cut next week. Some oats and barley in the locality have been cut on the early side to avoid greater loss by hoppers.

Hoppers thinned out to some extent on Sunday and succeeding days. They have come and gone until now there appears to be considerably fewer than a week ago. Damage to grains has not been so great as seemed probable a week ago. With plenty of green vegetation the insects seem far less voracious than last year. So far they have clipped a few heads from oats and barley, but most of the wheat on the station has not been seriously damaged.

Corn, millet, and other warm season crops made good growth during the week. Corn has started to tassel at a height of 2 to 4 feet.

Visitors included Drs. A. M. Schlehuber, Herbert C. Hanson, E. A. Helgeson, W. W. Whitman, and H. L. Walster; and J. Allen Clark, U. J. Downey, and W. J. Hunt.

Maximum temperature, 96°; minimum, 49°; precipitation, 0.09 inch. Precipitation to date in July, 1.80 inches.

MANDAN:

Agronomy - The highest temperature for the season occurred on the 11th. The heat slowed up the grain growth and some has started to ripen. Oats and barley harvest is in progress in the area.

Hay that had been down for some time was hauled during the week. Mowing of hay and weeds has been in progress for part of the week. Some of the grass is a little too far advanced for hay. Corn has made excellent progress during the week.

Maximum temperature, 98°; minimum, 51°; precipitation, trace.

Cooperative Grazing Experiment - All pastures still are in excellent condition for grazing. Crested wheatgrass is now too far advanced to make the best pasture.

Horticulture - Chinese cherries, raspberries, and a few gooseberries were harvested. A few new selections of the Chinese cherry were made, all being red seedlings of a white P. tomentosa progeny, it also being the parent of Drilea, a new Nanking cherry variety introduced by the Dominion Experiment Station at Morden, Canada. The rest of the gooseberries and Golden currants will be picked next week. Raspberries are yielding a fair crop, and even the Leucretia dewberry has considerable fruit this year. Sandcherries are beginning to ripen.

The orchards were sprayed during the week. Cultivating and hoeing has been in progress, as weeds are now growing rapidly.

Vegetables, especially the cabbage family, continue to yield abundantly. Rootcrops are coming in, and second planting of peas is at its best. Tomatoes are beginning to ripen, the station bred varieties seemingly coming the earliest.

Weeds, especially Amaranthus in variety and Portulocca sp., are plentiful this year, and hoeing and cultivating of the vegetable plots has been in progress during the week.

The recent hot and dry weather is having effect on lawns and flower borders. Rain in the near future would be very welcome. Shrubs in bloom include Ural false spirea and Tamarix odessana. Perennial flowers such as Platycodon, Gaillardia, Hemerocallis, and Lilium regale, are at their best at the present time.

Visitors included Gustav A. Wiebe, Arthur C. Dillman, and J. Allen Clark of Cereal Crops and Diseases, Washington, D. C.; Elmer A. Ausemus, St.Paul, Minn.; and Ralph W. Smith, Dickinson, N. Dak.; of the Soil Conservation Service, Lincoln, Nebr. A. D. Stoesz and Dwight McVicers; of the North Dakota Agricultural College were H. C. Hanson, Director of Station, E. J. Haslerud, and L. R. Waldron. W. J. Hunt, Asst. to Director, Agriculture and Immigration, Northern Pacific Railway; and A. P. Kimmell, Traveling Freight Agent, visited on Friday, the 14th.

County Agents and County Agri. Conservation committeemen from Kidder, Logan, McIntosh, Emmons, Sheridan, and Stutsman Counties(N. Dak.), 26 members visited on the 10th. On the 12th a similar group of 45 members from Sioux, Morton, Oliver, Burleigh, McLean, and Grant Counties (N.Dak.) visited. G. N. Geiszler, Extension Soil Conservationist from the North Dakota Agricultural College accompanied each group.

NEWELL:

Hot, dry weather prevailed throughout the week, and the evaporation was excessive. All spring sown small grains have burned beyond recovery, and the growth on many of the plots is not sufficient to afford protection against soil blowing. The only grain which was headed is confined to 1 to 2 percent which came up shortly after seeding. Much of the later grain did not begin to joint, and the height of growth on the various plots ranges from 3 to 6 inches. Winter rye is a total failure, but some grain will be obtained from the sole surviving plot of winter wheat. Sorgo and corn made a fair growth, but the leaves of corn curled on the exceptionally hot days. Potatoes are coming up very slowly.

Field work included harvesting grass hay, thinning and hoeing corn and sorgo, duckfooting roads, and hoeing alleys.

The 24th annual picnic was held at the station on July 15.

Maximum temperature, 104°; minimum, 58°; precipitation, none.

ARCHER:

The weather during the week ending July 15 continued dry with higher temperatures. Drought conditions are made worse by the presence of grasshoppers. Farmers are putting forth great effort to save their remaining crops for feed. At present this effort consists of cutting all small cereals for feed regardless of the stage of maturity. At the station the grasshoppers have moved in on 20 acres of Vance Smyrna barley and have stripped the leaves and beards from about half of it. The sheep were turned into this field today. A 20-acre field of Horn barley, which was intended for grain production, is being cut for hay. The grasshoppers are damaging the rotation plots.

Station activities consisted of finishing the treatments of the grass land in the pasture experiment, trimming plots, and harvesting winter cereals.

Director W. L. Quayle, Co. Agt. Louis Schilt, and Wayne Austin of the Soil Conservation Service were station visitors.

Maximum temperature, 100°; minimum, 52°; precipitation, 0.01 inch.

NORTH PLATTE:

Temperatures of over 100° were recorded on the last six days of the week. The highest temperature, 109°, has only been surpassed two years in July during the past 32 years. No precipitation fell during the week, and slightly more than a trace has been recorded during the past two weeks. The corn has made a good growth and is beginning to tassel, but moisture is needed for its further development.

Threshing was completed during the week, and the following are some of the yields recorded in bushels per acre: For winter wheat stubbled in, 8.2; disked, 17.4; late plowed, 18.5; listed, 20.0; early plowed, 20.4; after Early Kalo, 2.0; after corn, 19.6; after potatoes, 20.0; after fallow, 28.1; all plots following cropped land, 19.8; all plots, 22.7; all methods, 20.0. The highest plot yield was 37.3 bushels (after fallow) and the lowest was 1.8 bushels (after Early Kalo). Yields for oats: after corn, 26.8; after oats, 25.1; after spring wheat, 32.7; after fallow, 39.5; average of all plots, 30.7. Yields for barley, after cropped plots, 15.9; after fallow, 33.1. Yields for spring wheat, after cropped plots, 7.5; after fallow, 16.5. The spring wheat suffered more from the drought than any of the other crops, and the grain was somewhat shriveled.

Dr. K. S. Quisenberry visited the station during the week.

Maximum temperature, 109°; minimum, 65°; precipitation, none.

AKRON:

This has been a hot week, with five of the seven days registering maximums in excess of 100°. The Wednesday maximum reached 107°, the highest yet recorded at this station. There was an almost constant strong south wind. There were no clouds, no nearby thunderstorms, and no show of precipitation.

Harvesting was completed, and a start was made at threshing the rotation winter wheat plots. No fallow plot yields in excess of 9 bushels per acre have yet been threshed, but the grain is plump and good color. Sorghums are growing, but corn already is distinctly suffering. Millet is getting "stringy", a peculiar manifestation of dry soil. Grasshoppers are chewing outside rows of corn off below the leaf line. Bait was prepared and spread this past week in an effort to reduce their numbers.

K. S. Quisenberry, D. W. Robertson, and J.J. Curtis visited Tuesday. Horace Smith returned to Fort Collins with them to do about a week's work on his thesis material. Jess L. Fults, Don G. Fawcett, and Charles H. Russell of the Soil Conservation Service visited Thursday.

Maximum temperature, 107°; minimum, 54°; precipitation, none.

HAYS:

Dry, hot weather continues, the lowest maximum temperature during the week having been 100°. Hot winds have prevailed and the sky has been partially filled with dust upon several occasions. Most of the dust appears to come from great distances, however, some of it has risen from local fields that have not been cultivated since the last heavy rain in June.

Feed crops generally are at a standstill, and some of them are suffering severely from the drought and heat. Pastures are continuously getting shorter.

Maximum temperature, 111°; minimum, 62°; precipitation, none.

GARDEN CITY:

No precipitation fell this week and only 0.01 inch has fallen thus far this month, and that was July 1. The crops are making slow growth and are rather small for this time of the year, which is a good thing since soil moisture is so low. Maximum temperatures ranged from 98° to 106° and minimum ranged from 64° to 77°. Dust came in from the southwest Saturday and there was also some local blowing.

Very good kills of grasshoppers were obtained from poison bran, and there are only a few left. The hoppers did considerable damage to the Sudan grass, corn, and cowpeas, and on some of the cowpea plots there are only a few plants left.

Early fall plowing, one-waying, and listing were completed this week, and some of the fallow plots which were weedy were duck-footed and rodweeded.

Station visitors were L. E. Call, Director of Experiment Stations, Manhattan, Kansas, and E. W. Johnson, Southern Great Plains Field Station, Woodward, Oklahoma.

Maximum temperature, 106°; minimum, 64°; precipitation, none.

COLBY:

This has been another dry, hot, windy, and dusty week. There was some soil blowing nearly every day on bare fields that have not been worked since it rained. There are not many of these, as it has been a long time since any appreciable rain has fallen. The corn and sorghums are still holding their own, because most of them were planted late and are not yet making maximum demands on the soil moisture. Then, too, there are not many weeds.

The harvest is over. The yields were mostly disappointingly below normal. Most of the wheat was thin, and the stubble fields have scattering thistles and other weeds which will make them weedy should rain come.

The July tillage work for wheat will be practically completed today. Where the wheat was thin and not too weedy there is somemoisture left in the surface foot. Ground that was not plowed last year and that grew a good stand this year plowed very hard and cloddy, being throughly dry.

Maximum temperature, 107°; minimum, 63°; precipitation, none.

TUCUMCARI:

Lower temperatures marked the week, but the drought continues. No precipitation has been received this month; over the past 72 days only 1.04 inches was received. The total for the year to date, 5.63 inches, is nearly three inches below normal. During the period in which 1.04 inches precipitation was recorded, evaporation was over 25 inches.

Crops are growing slowly, although scattering plants are dying from drought effects. Late plot and increase plantings have not been made, and it is probable a considerable acreage of Sudan grass will be planted after rain occurs, to hold soil next spring.

Work included cultivation, working on wells, painting wagons and hay racks, and a small amount of plot thinning. Much thinning is being delayed until rain occurs, as it appears unwise to thin all plots to stand under the extremely unfavorable climatic conditions existing now.

Conchas Dam is nearing completion, and water is nearly 100 feet deep at the dam. The narrow lake already formed extends up both the Conchas and Canadian rivers some 6 to 8 miles. Surveys for the irrigation project are continuing, but no contracts for canal construction have been let.

Maximum temperature, 101°; minimum, 59°; precipitation, none.

DALHART:

An outbreak of "army worms", locally identified as Cirphis unipuncta Haw, infested the station this week. A slight migration started Sunday, July 9, and the greatest movement occurred on the station on Monday. The reports received indicate that this pest was pretty generally distributed in this immediate area. The hatching ground seemed to be in Russian thistles, and this plant appeared to be the favorite feeding plant where there was a choice. Goatheads (Tribulus terrestris) and several species of perennial plants were really not bothered. Young sorghum plants and cowpea plants were readily eaten. Most of the sorghum plants on the station were at the 3 to 5 inch height and the leaves were completely stripped in many cases. However, except for those rows adjacent to the invasion, sorghum plants of this size will show but little loss. Cowpeas, which were in the two leaf stage, were completely killed on all except 5 of the rotation plots. Variety plots of cowpeas should recover. Since Monday the depredations on the field crops have diminished, while Thursday and Friday show defoliation on Chinese elm trees which were in the path of the greatest migration. The only permanent injury suffered on the station will be the loss of stands on some 17 rotation plots of cowpeas (these could be replanted within a week should rain come to justify planting, and make a crop), and the possible necessity of replanting some Sudan grass which was just emerging.

Work during the week has been chiefly thinning of row sorghum crops to stands. There remains about two days of this work. Other work has consisted of soil sampling, cultivating, and hauling weeds. The rye plots were clipped (mowed).

Maximum temperature, 97°; minimum, 53°; precipitation, 0.24 inch.

LAWTON:

Another week of parching temperatures that ranged up to 106° intensified crop distress. The average maximum temperature for the first 15 days in July was 101°. The monthly precipitation to date amounts to 0.15 inch.

Plant development of cotton and sorghums is practically at a standstill. The garden web worm destroyed from 1/3 to 1/2 of a few cotton plots in Field B rotations. Some farm complaint in surrounding territory has also been received. Corn is burning and drying up rapidly. Harvest will likely be necessary within a very few days.

Threshing of wheat, oats, and barley from which seed for planting purposes must be obtained was nearly completed during the week. The 1939 wheat yields in the rotations and methods of tillage are summarized as follows:

Wheat	Bushels per acre
Drilled in cotton	2.2
Drilled in cotton (Topdressed)	3.0
On fall plowed wheat	4.5
Late fall plowed, shallow	0.0
Early fall plowed, shallow	2.5
Subsoiled	3.8
Disked as needed	2.4
Disked at seeding time	0.0
On disked cowpeas	3.6
On disked cowpeas, topdressed	5.2
On G. M. (cowpeas)	7.8
On fall plowed oats	3.4
On fall plowed barley	4.5

Wheat	Bushels per acre
On basin listing	2.0
On basin listing, manured	0.0
On fallow	8.5
On manured fallow	10.3
On fallow, topdressed	11.0

J. J. Morgan, Division of Crop and Livestock Estimates is spending a few days at the station.

WOODWARD:

The week was hot and dry, with no precipitation. Cleaning and weighing of wheat from the D.L.A. plots has been completed, yields ranged from 1 bushel per acre, on two plots planted with no preparation, to 26.7 bushels on plot 156-C, a manured fallow. Plot and other roadways on the station have been trimmed and cleaned up. Considerable land has been one-wayed in preparation for the planting of Sudan to serve as a seedbed for grass plantings next spring. Some grass has been harvested. Peaches, apples, plums, and tomatoes were picked during the week. E. W. Johnson began the inspection of cooperative plantings.

R. E. Cole, an engineer on the Caddoa Dam in Colorado, R. G. Dahms from Lawton Field Station, and Dr. Leroy Powers of the Cheyenne Horticultural Field Station were station visitors during the week. Dr. Powers came to obtain material for cytological studies in connection with blossom drop of tomatoes and to make selections in advanced generations of hybrid tomatoes.

Maximum temperature, 100°; minimum, 60°; precipitation, none.

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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

GPO 123668

JUL 22 1939

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REPORT FOR THE WEEK ENDING JULY 22, 1939

HAVRE:

Cooler weather with occasional light showers prevailed, tending to check the ripening of small grains. Field work continued with only short interruptions due to showers.

Binding winter wheat and winter rye, early sown oats and barley, and early maturing barley varieties was completed the latter part of the week. Rotation corn was thinned, miscellaneous summer fallows were cultivated; and grain hays were mowed, weighed, and hauled off the field. Binding and shocking oats in field C and winter rye in the calving pasture were major activities on farm fields.

No additional flights of grasshoppers were noted during the week. Good kills on baited fields have been observed but damage still continues, leaves being stripped and heads cut off many of the barley varieties. Late seedings of barley, oats, wheat, and rye, together with later heading grains on fall and spring-plowed tillage methods are now showing the most damage from grasshoppers.

Visitors during the week included M. P. Hansmeier, Extension Conservationist, A. H. Post, Agronomist, Dr. R. R. Renne and G. H. Craig of the Economics Department, Montana Experiment Station; C. C. Starring, Soil Conservation Service, Great Falls; E. J. George, Northern Great Plains Field Station, Mandan, N. Dak.; W. D. Hay, Montana Seed Growers Association, Bozeman; and J. A. Clark, Division of Cereal Crops and Diseases, U. S. D. A.

Maximum temperature, 94°; minimum, 45°; precipitation, 0.21 inch.

JUDITH BASIN:

The week was dry and moderately cool with only three days of maximums over 90°. Various plots, especially of spring wheat and oats, continue to show the effects of severe firing. Corn has on a number of days begun to show the effect of the dry weather and extreme heat of the previous two weeks.

Although some work has been done in the stacking and hauling of bulk hay, the week has been spent primarily in preparation for and holding of the Judith Basin Picnic Association Field Day on the 20th. An estimated crowd of slightly over 1,000 was present in spite of the cold, windy weather on that day. It was encouraging to notice the increased interest in the plot tour which emphasized the windbreak, rotations, cereal project, forage, and pasture experiments.

Dr. C. E. Leighty and J. M. Stephens were here the early part of the week accompanied by Supt. M. A. Bell from the Havre station. The following visitors were here on picnic day; Director Clyde McKee, Dean and Director Emeritus F. B. Linfield, Professor A. H. Harrington, S. M. Litzenberger, J. M. Cummings, Rex Willard, J. L. Crawford all from Bozeman; E. C. Starch of Lincoln, Nebr.; and Mr. Bailey of Corvallis, Ore.

Maximum temperature, 93°; minimum, 40°; precipitation, 0.09 inch.

HUNTLEY:

Growing conditions throughout the week continued favorable for corn, sorgos, and beans; but alfalfa, grasses, and spring small grains fired badly. One dashing shower and several windy days caused serious lodging in some of the grain plots. Harvesting was begun on the 18th, and to date most of the winter wheat and barley plantings have been cut and a start was made on plots of oats and flax. Because of uneven germination of spring grains, ripening dates on various tillage methods have varied considerably.

Weights were taken of the hogs on peas pasture on the 21st. The average daily gain of the spring pigs during the 14-day period was 1.6 pounds. The peas, which are now maturing seed, have supplied an abundance of high-quality forage.

Grasshoppers have continued to drift into the cultivated lands from surrounding range territory, but injury to crops by the insects has been slight.

Station visitors during the week included Dr. C. E. Leighty, J. M. Stephens, R. M. Williams, and M. A. Bell of the Division of Dry Land Agriculture; Director Clyde McKee, Dean F. B. Linfield and Dr. A. M. Schehuber of the Montana Experiment Station; the agricultural class of the local CCC Camp; and numerous farmers. The 32nd Annual Project Picnic is being held here today.

Maximum temperature, 99°; minimum, 46°; precipitation, 0.08 inch.

SHERIDAN:

Although temperatures averaged slightly below the station average for the season, hot weather on some days, with high winds accompanying some of the more moderate weather, tended to ripen grain fast, with some of it apparently simply drying ripe. Some of the late crops fired considerably during the hot days.

Harvesting was continued intermittently with a large part of the barley, oats, winter wheat, and some spring wheat being cut. Grain sorghums were hoed, and thinned where the stand was thick.

Dr. C. E. Leighty and J. M. Stephens were at the station on the 20th.

Maximum temperature, 100°; minimum, 41°; precipitation, trace.

DICKINSON:

Temperatures were above normal most of the week, and strong, drying winds on three days hastened the maturity of crops and resulted in some lowering of yields where the moisture supply was low. Most of the grains planted on fallow and on fall or spring plowing had enough water to fill well. Grains apparently will be normal in weight per bushel and yields average or better.

Oats, barley, rye, and two plots of winter wheat were harvested on the rotations. Oats and barley promise the best yields since 1928.

Crested wheatgrass on the station is being harvested. Wheat harvest will begin next week.

Visitors included E. R. Enlow, Walter V. Kell, W. J. Leary, O. S. Fisher, and J. Allen Clark.

Maximum temperature, 94°; minimum, 46°; precipitation, 0.09 inch.

MANDAN:

Agronomy - The hottest period of the season occurred during the week. A high and very hot wind blew on the 20th, when the temperature reached 100°F. Ripening of grain has been hastened by the heat and dry weather. Yields of grain are likely to be reduced below the prospects of a week to 10 days ago.

Harvest of oats, winter rye, and barley was well along in the rotations by the end of the week. Most of the crested wheatgrass was cut for seed.

Corn is still looking good but is near the point of needing moisture.

Maximum temperature, 100°; minimum, 54°; precipitation, 0.30 inch.

Cooperative Grazing Experiment - Grass in the pastures dried up badly during the week. Blue grama grass has dried up in spots. It is headed out well, but not nearly so much as in 1938.

Horticulture - Gooseberries, Golden currants, and a few sandcherries were picked during the week. Yields and quality of fruit were generally good. Raspberries are also yielding a fair crop, Chief being the highest yielder up to the present. Cumberland black raspberries are doing well. Some of the new sandcherry varieties are bearing for the first time this year. Okreek and Brooks are large fruited varieties that appear to be among the best of the sandcherries. Some of the station selections again look good.

Cultivating and hoeing have been in progress as weeds are making a rapid growth.

Vegetables continue to yield well, although the recent dry and hot weather has been somewhat detrimental to some crops.

Tomatoes are ripening nicely, some 20 pounds having been picked from the acre garden so far. Varieties of the Allred and Bison type are loaded with fruit but none ripe as yet.

Floral plantings about the grounds are still doing alright, although the hot winds and high temperatures have caused the blooms to last a very short period. Platycodon and Hemerocallis seem outstanding in enduring hot and dry weather and still go on blooming profusely.

On Monday and again on Tuesday about a hundred members of the Burleigh, Mercer, and Morton Counties 4-H Clubs, holding camp at Mandan, visited the station. They were accompanied by several County Agents.

Jason R. Swallen, B.P.I.(Plant Introduction) is at the station studying grasses for classification, both on the station and on the surrounding prairie.

C. R. Enlow, SCS, Washington, D.C., Walter V. Kell, SCS, Lincoln, Nebr., Moses N. Levine, B.P.I., (Rusts) University Farm, St. Paul, Minn., Vincent C. Hubbard, Woodward, Okla. Field Station, and Dr. H. L. Walster, Dean, Div. of Agriculture, N. Dak. State Agricultural College, visited the station during the week.

BELLE FOURCHE:

The weather was abnormally warm during most of the week, and injurious hot winds were frequent occurrence. A cooling wind commenced blowing from the northwest shortly before noon on July 20, and the temperature dropped rapidly from a maximum of 102° to a minimum of 50°.

The following two days remained comparatively cool. A heavy shower of 0.58 inch precipitation occurred on July 18. Considerable hail was received, which injured the leaves of corn and other crops, but the damage was not severe. Owing to excessive run-off, the precipitation was of no benefit to crops, except in depressions where water collected.

Crops in general continue to deteriorate rapidly. Spring sown small grain has burned so badly that it has completely dried up on all cultural treatments except fallow. Corn has progressed very slowly, and is suffering from lack of moisture.

Maximum temperature, 102°; minimum, 50°; precipitation, 0.58 inch.

ARCHER:

Drought and high temperatures continued during the week. Grasshoppers continued to move in on the crops. Owing to these conditions crop production in this section changed to crop salvaging operations, however, if the drought is broken soon, corn, potatoes, beans, and sorghums will produce some yields.

At the station corn is tasselling and potatoes are beginning to bloom. Barley is ripe, oats are ripening, and wheat is approaching this condition. Pasture grasses are dry.

Station activities consisted of preparing for the annual Farmers' Field Day and harvesting crops for hay.

Notwithstanding pressing harvesting conditions and intense heat about 250 farm folk visited the station during Field Day.

Dr. C. E. Leighty and J. M. Stephens visited the station July 22. Dr. H. S. Willard, Dairy Department Head of the University of Wyoming; Dr. H. M. Benedict of the Division of Forage Crops; and C. S. Llewellyn of the Soil Conservation Service also visited the station.

Maximum temperature, 100°; minimum, 49°; precipitation, 0.02 inch.

NORTH PLATTE:

High temperatures of last week were broken by rains in several sections of the State. Temperatures were nearly normal most of the week, although temperatures were well above 100° on Wednesday. Little more than a trace of rain fell during the week, and to date only 0.08 of an inch has been recorded for July.

Corn on the DLA plots is silking and will yet make a good crop if it rains soon. Some corn on the dry land is burning, and some is past recovery even with moisture in the near future. Sorghums are making satisfactory growth, and a few early varieties seeded on May 22 are headed.

The work of the week consisted of mowing weeds, cleaning up roadways and alleys, and weeding stubble plots.

Maximum temperature, 107°; minimum, 59°; precipitation, 0.01 inch.

AKRON:

Another hot, dry week with showers tantalizing a section that is truly dry.

Forage and grain sorghums are still holding nicely. Corn already appears to be beyond recovery. Millets have pruned their roots to bare contact with the earth, and the plants appear to be sitting on top of the ground. Beans but barely emerged, wilt sharply each afternoon but are not as yet coloring.

Rotation plots were threshed and good progress was made on increase plots and on the cereal experiments. Yields were little if any better than those obtained in 1934.

	Fallow	Green manure	Cornland
Winter wheat	4.4	2.8	.1
Spring wheat	1.8	1.5	.1
Barley	9.0	- -	2.2
Oats	9.3	5.7	2.5

C. R. Jones and Sam McCampbell of the Entomology Department of the State College called Monday. A. K. Hepperly, Agricultural Agent, "Buck" Taylor, Livestock Agent, and two other Burlington Railway officials visited Tuesday. Douglas Craig, former summer student employee but now with the Soil Conservation Service called Saturday.

Maximum temperature, 107°; minimum, 52°; precipitation, 0.19 inch.

COLBY:

This has been a week of local showers and dust storms. It has been windy enough at least a part of every day to fill the air with dust and cause some soil blowing. Nearly every day there has been a local shower in the vicinity somewhere. Only one of the showers hit here. That was Tuesday evening. The rainfall in Colby was 1.05 inches, but out here it was only 0.41 inch. Most of the time it has been very hot with hot winds. In between the extremely hot periods it has been moderately cool.

The corn and row crops are still in fairly good growing condition. The corn has been damaged considerably by grasshoppers and some by the hot winds. Grasshoppers do not seem to be quite so numerous and destructive as they were previous to this week. Some of the corn is beginning to tassel. If the weather stays cool and rainy as it is today it may pass through the tasseling period without serious injury.

Maximum temperature, 107°; minimum, 59°; precipitation, 0.41 inch.

HAYS:

Continued dry and hot weather prevailed throughout the week until yesterday when the wind changed to the north, since then it has been quite comfortable.

Corn, sorghums, feed crops, and pastures are badly in need of moisture. The leaves on many trees are wilting, and some of the trees are dying.

Corn, kafir, and milo are suffering severely on all plots except fallow and the disked plots where the growth is very much better but is not up to normal.

Soil samples were collected from a number of plots, and two general applications of grasshopper poison were made covering the project.

Maximum temperature, 110°; minimum, 62°; precipitation, 0.07 inch.

GARDEN CITY:

The largest rain since September 12, 1938, was received on Monday evening and amounted to 1.30 inches. It fell rather gently and was of considerable benefit to the row crops. A 0.05 and 0.13 inch rain were also received during the week. Dust occurred on four days, two of which were termed "bad". The bad storms lasted only a few minutes and were quieted by rain.

Field work consisted of cultivating row crops and taking soil samples.

A trip up the valley a few miles revealed the fact that the station wasn't the only place that had difficulty getting stands of row crops, and this was true on irrigated land as well as dry land. Many of the fields had been replanted. Grasshopper damage was heavy on the alfalfa, and in many of the fields all that remained of the plants were the stems.

Station visitors were Harry Dole and E. H. Felts of the Farm Security Association, Garden City, Kans.

Maximum temperature, 104°; minimum, 62°; precipitation, 1.48 inches.

TUCUMCARI:

Four showers totaling 1.24 inches were of great benefit and the first precipitation of value since May. Total for the year to date, 6.87 inches, is just 2 inches below normal.

Row crops have resumed growth, but ranges need much heavier precipitation immediately. The rains of the week permitted planting of the late date plots, drilling a considerable acreage of increase land to Sudan grass, plowing wheat and rye plots, and the resumption of thinning which had been postponed because of the extreme drought.

Temperatures have been much lower the past two weeks, with very low wind movement.

Maximum temperature, 100°; minimum, 58°; precipitation, 1.24 inches.

DALHART:

Thinning of late planted sorghums was completed the first of the week. Except for a few late planted plots the first cultivation was also completed. A good start has been made towards trimming the plots and counting the plants on the row plots. Apparently stands are going to be as nearly uniform and as close to the desired number of plants per row as they have been in a number of years. The vineyard and tree plantings were hoed. The goatheads require frequent hoeing to get them, as they come so easily after a light shower. Apparently, as was true last year, it will be nearly necessary to keep a hoeing crew busy on the plots during the summer months.

An unusual happening this year is that the sorghums planted in lister furrows gave equally as good emergences as those surface planted, and in addition for the first three weeks at least have given as much growth.

Maximum temperature, 99°; minimum, 58°; precipitation, 0.15 inch.

BIG SPRING:

Rather high temperatures combined with little or no wind movement made weather conditions seem unusually warm this week. Crops are making a rapid growth and cotton is fruiting heavily at present, but more rain will be required in the near future if this lush growth is to be supported.

The seasons planting was completed July 17 when a late planting of Sooner milo and Early Kalo was made. A plot each of Dwarf Yellow milo, Hegari, and Quadroon was also planted at this time. Many farmers this year were unable to plant their crop until the middle of July; there were many inquiries received as to what to plant that would mature grain at this late date.

Cultivating and hoeing weeds have required the greater portion of the time of the station force during the week.

Maximum temperature, 100°; minimum, 70°; precipitation, none.

LAWTON:

Crop deterioration continued throughout the week, as maximum temperatures soared to 110° and averaged 105.5° from the 15th to the 22nd, inclusive. Vegetation of all kinds suffered intensely. Grain sorghums are quite generally trying to head, and that under present conditions means a grain failure. The foliage is also burning. Cotton is blooming quite freely, and the shedding of squares and young bolls is rapidly becoming very heavy. Two showers during the week amounted to 0.12 inch.

WOODWARD:

Today completed the third week of hot, dry weather with only one shower of 0.10 inch. The maximum temperature during this period has been 100° or above on 10 of 21 days with a maximum of 107°. Grain sorghums, even where the plants were not more than a foot or so tall, have been showing the effects of the drought for several days. Sowed feed, both on the station and over the surrounding territory, has been burned severely.

It is reported that many of the ranchers have to haul water. The City supply has been failing and water has not been available for even domestic use on the station for periods varying from 3 to 4 to 18 hours a day for the past several days. The City has put in one new well in apparently good water bearing territory, and it is hoped that this situation will be relieved. In the meantime, considerable water has been hauled from the station lake to keep some of the young plants in the nursery and some of the plantings on the campus alive.

The new long-time grass rotations have been laid out and preliminary plantings made. Late planted sorghums on the Cereal project have been thinned and increase wheat cleaned up in preparation for treatment for sale. The first grapes were picked during the week. Some peaches, apples, plums, and tomatoes were also harvested.

Maximum temperature, 107°; minimum, 63°; precipitation, 0.10 inch.

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JUL 29 1939

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REPORT FOR THE WEEK ENDING JULY 29, 1939.

HAVRE:

Dry, hot weather continued, with consequent rapid ripening of small grains. Temperatures exceeded 90° on five consecutive days, culminating in a maximum of 103° on Friday.

Several heavy flights of grasshoppers were observed during the week, easterly winds being favorable to mass movements. Damage in this section seems to be spotted, several farmers reporting heavy infestations, whereas others have nearly normal numbers. Corn has begun to suffer grasshopper damage, feeding being mainly confined at present to tender leaves, anthers, and silks.

Barley and oats were bound in the rotation field. Winter wheat varieties, later barley varieties, and oat varieties were also cut. Owing to the heavy hopper damage during this and preceding weeks oat and barley nurseries were abandoned, notes being taken and both tests bound in bulk. Inbreeding and crossing is progressing rapidly in the corn nursery, although attended by some difficulty, due to the heat, which sears tassels on some of the weaker lines before silks begin to appear.

Activities on farm fields consisted of binding oats and spring rye on the contour field, and stacking the heavy crop of spring rye from the strips in field C.

C. R. Enlow, W. V. Kell and party of the Section of Agronomy and Range Management, SCS; and Fred Butcher, U. S. Entomologist, visited the station during the week.

Maximum temperature, 103°; minimum, 53°; precipitation, 0.32 inch.

JUDITH BASIN:

The past week with only 0.02 inch precipitation, which is the total received since the 16th of the month, was unfavorable for crops. With the hot dry winds spring grains continue to suffer and many plots have dried ripe.

Many rotation plots of winter wheat, rye, oats, and barley have been cut. Without precipitation soon the seedings of spring wheat will be burnt beyond recovery. Increase plots which were sown late depend on moisture, otherwise they will have to be cut for hay.

East winds the early part of the week brought large numbers of grasshoppers, which have begun feeding on barley and oat varieties. Poison bran has been spread in and about the cereal nurseries.

There appears to be considerable weak straw in spring grains throughout this section. Some is caused by crinkle joint and in some instances from a small worm or maggot. At first farmers attributed the injury to hail. Damage as high as 60 percent was noted in some of the station oat plots.

Mapping of the list quadrats in the native grass pasture was begun. There is a noticeable increase in young seedlings since last year.

The crew of CCC boys spent three days weeding the cooperative forage project. The entire camp attended the picnic last week and assisted with the parking of automobiles.

Visitors included J. Allen Clark, Washington, D. C., who made his 25th yearly station visit relative to Cereal projects; Dr. R. H. Bamberg and L. A. Clark, both of Bozeman; County Agent William Jones; and Chas. R. Enlow's party of SCS representatives.

Maximum temperature, 98°; minimum, 50°; precipitation, 0.02 inch.

HUNTLEY:

Relatively high temperatures and lack of usable precipitation during the week have caused all crops except sorghums to wilt or curl in the warmest part of the day. Corn is showing some burning, but on none of the plantings is the condition serious as yet. The crop is well tasselled and silked, and the stover growth on all plots is about up to the average.

Grain harvesting, haying, and soil sampling have been the principal operations on the dryland fields the past week. All grain and flax plots have now been cut, with the exception of a few plantings upon which emergence was largely delayed by spring drought and ripening has been uneven. Hay cured quickly as a result of favorable weather and a light crop. The quality is fair.

Maximum temperature, 100°; minimum, 53°; precipitation, 0.06 inch.

SHERIDAN:

Average temperatures continued slightly below the station average over the week, but several hot days with drying winds and no rains ripened grain fast, with much of the later grain drying badly. Close seedings of Sudan grass are firing badly, and corn curls badly during the day. Harvesting was continued as fast as possible over the entire week.

The station Field Day was held the 27th. Attendance was slightly increased over previous years with a corresponding increase in the interest in the work being done. Visitors included W. L. Quayle, Director of State Experiment Farms, A. E. Bowman, Director of State Extension Service, Val Kuska, Colonization Agent for the Burlington R.R., C. S. Llewellyn of the Soil Conservation Service.

Maximum temperature, 99°; minimum, 47°; precipitation, trace.

DICKINSON:

Hot, dry weather hastened the ripening of grain still standing and caused some shrinkage in yield on soils where the moisture was exhausted. The maximum temperature for the year to date of 102° was reached about noon today. All growing crops now need moisture, including corn, millet, and potatoes as well as fruits and trees.

Most of the wheat on the rotations was cut. A few plots of common wheat, most of the winter wheat, and the durum are yet to be harvested.

Threshing of Gopher oats on the main field was completed today. The average yield of 65 bushels was the best since 1928. The yield after the various tillage methods was as follows:

Oat	Bushels
Disked corn ground	68.4
Spring plowed	56.0
Fall plowed	59.4
Fallow	70.3
Green manure	80.6
After sod	69.2

The high yield of 90.0 bushels was on rotation 14, rye green manure, and the low yield of 46.3 bushels was on rotation 62, where the rank straw growth induced by manure resulted in a lack of water before maturity.

On continuously cropped plots the yield of the 33d crop of oats was 58.1 bushels on MCA spring plowed, and 61.9 bushels on MCB fall plowed.

All the oats were of good quality with weight per bushel above normal.

Visitors included F. A. Coffman and H. C. Murphy.

Maximum temperature, 102°; minimum, 47°; precipitation, 0.04 inch. Precipitation to date in July 1.93 inches.

MANDAN:

Agronomy - Hot and dry weather continued throughout the week. Corn is badly in need of moisture.

Harvesting of all small grain was completed during the week. Yields will be much below earlier expectations.

Maximum temperature, 97°; minimum, 57°; precipitation, trace.

Cooperative Grazing Experiment - Pastures continue to dry up. Flies are bad, and the cattle do not put in much time grazing during the day.

Horticulture - Picking of raspberries, golden currants, and sandcherry varieties and selections has been in progress during the week. There has been a very good crop of all these this year. The best yielding varieties of raspberries were Cumberland, Chief, and Newburgh. Latham and Potomac are late varieties just beginning to ripen and seem very promising.

A few of the station selections of golden currants seem outstanding as to size and yield, and ought perhaps to be named and introduced to the general public.

Of sandcherry varieties, the Sioux was the earliest and had a very good yield. Newer varieties bearing for the first time and apparently very promising are Okreek and Brooks. Cultivating and hoeing of orchards have been in progress, and the weeds seem fairly well subdued at the present time. The recent hot and dry weather is beginning to show effect on seedlings and vegetables. The fruit nursery is being irrigated the last few days.

Vegetable growth seems almost at a standstill, and some crops such as cabbage and sweetcorn are definitely deteriorating.

The lawns about the station grounds were beginning to dry up and irrigation of these has been in progress during the week.

Visitors included H. B. Humphrey, Pathologist (oats) Washington, D.C., and H. C. Murphy, Pathologist, (oats), U.S.D.A., Ames, Iowa.

BELLE FOURCHE:

Drought injury to the various crops was materially increased by dry, hot weather during the week. Spring wheat on fallow succeeded in partially heading at a height of approximately 10 inches, but the heads are very short, and little grain will be produced. Corn and sorgo have been unable to make much progress, as both crops are suffering seriously from lack of moisture. The leaves of corn are remaining curled without recovering at night, and the tips of the leaves are beginning to burn. Corn apparently will not make sufficient growth, except on fallowed land, to permit harvesting for fodder.

Blister beetles are doing extensive damage to crops in some sections, destroying entire fields of sugar beets and other crops, despite the use of recommended control measures. Potatoes in the dry land rotations have been severely damaged by these pests, but the last dusting of the young plants repelled or controlled the beetles temporarily.

Visitors included Dr. C. Thom, Division of Soil Microbiology, and S. H. Hastings Division of Irrigation Agriculture, Washington, D.C.; Director I. B. Johnson and N. P. Larson, South Dakota Experiment Station, Brookings, South Dakota.

Maximum temperature, 99°; minimum, 55°; precipitation, none.

ARCHER:

The weather continued dry. Temperatures were cooler, but the wind was not sufficient to pump the needed water for the livestock, however, a brisk breeze has prevailed during the last 18 hours.

Corn on corn ground or fallow is in fair condition but most of that on land previously seeded to small grains is approaching the limit of drought endurance. Even though rain were to come immediately, it is doubtful if some of the corn would revive sufficiently to produce a crop.

During the week the barley and oats in the rotation plots were harvested. Some of the wheat is ready to harvest. The Sudan grass in the dairy field was cultivated, and the potatoes were sprayed. Soil moisture samples are being taken.

Director W. L. Quayle of the University of Wyoming and Professor Donald Christy of the Agricultural Engineering Department, College Station, Texas, were station visitors.

Maximum temperature, 93°; minimum, 49°; precipitation, 0.05 inch.

NORTH PLATTE:

Drought continued throughout the week. No precipitation was recorded, and only 0.08 of an inch has been recorded for the month. If no additional precipitation falls during the next two days, this will be the driest July on record. A few plots on corn still look good and will make a crop if rain falls soon, but several of the plots are hurt to such a degree that additional moisture will do little good.

The harvest time soil sampling was completed during the week. Early fall plowing on the DLA plots has been started. The ground is mostly very dry, and the plowed plots are left quite rough.

Maximum temperature, 99°; minimum, 58°; precipitation, trace.

AKRON:

Light local showers about the region this past week were sufficiently heavy in some isolated spots further east to be of use in developing sorghums, beans, and millets. The weather was not oppressively hot, but there can be no relief to the crop situation at this station until a heavy soaking rain is received. July has thus far produced only one-half inch in four separate measurable quantities.

Early fall working of the rotation plots was done last week. Threshing has been completed down to the nursery threshing.

Dr. C. E. Leighty and J. M. Stephens visited Tuesday.

Maximum temperature, 95°; minimum, 52°; precipitation, 0.28 inch.

COLBY:

The weather this week was much milder than for some time past. Local showers prevailed on several occasions over this section of the State. Here at the station the precipitation amounted to only 0.22 inch which fell Thursday afternoon, accompanied by a very high wind. There has been very little wind otherwise and not much dust.

Corn is beginning to tassel, but appears to be having difficulty due to the hot weather last week and the fore part of this. A rain will be needed soon to enable it to start ears. The sorghums still look fairly well but are beginning to show a need for moisture. Sudan grass pastures are drying considerably.

Maximum temperature, 103°; minimum, 59°; precipitation, 0.22 inch.

HAYS:

The temperature covered a wide range but generally the week was a warm one and dry except for small ineffectual rains. Rainstorms approached upon several occasions but resulted in small showers only one of which was large enough to be of any benefit. This occurred Thursday afternoon and measured 0.58 inch. It was very local in nature having varied from a trace on the east side of the Experiment Station farm to 0.66 on the west side. This rain was accompanied by a narrow streak of hail most of which fell on the station and centered on the east side of the Dry Land project. Fortunately no wind accompanied the hail. The hail mutilated the leaves of the corn and sorghum but did not break down many of the stalks. Damaged stalks were difficult to find.

On the 25th a 0.17 inch rain was accompanied by another hail storm which differed from the first in that the first storm was made up of very small hail but little larger than large peas whereas the hail that fell on the 25th were extremely large, varying in size from walnuts to large hen eggs. The shape was very irregular some being rough and angular. Fortunately for the experiment station very few and scattering was the fall of these hail stones. Perhaps not more than a dozen or 15 fell within a space 4 rods square. This storm was also very small and seemed to be the heaviest over the city of Hays where the damage was confined largely to car tops some of which were completely ruined, as many as 20 large holes having been made in one top. Again the damage was minimumized by the fact that no wind accompanied the hail storm, otherwise the destruction to windows would have been heavy.

Corn and feed crops generally continue suffering severely. The outlook has not improved. The need for more rain is very great.

During the week another application of grasshopper poison bait was spread over the project with excellent results. However, some isolated corn plots are still threatened with destruction.

All row crops are being cultivated today.

Maximum temperature, 105°; minimum, 62°; precipitation, 0.83 inch.

GARDEN CITY:

This week was rather cool in comparison with a few of the previous weeks, as the maximum went above 100° on only one day and the next highest was 98°. Wind velocity was not excessive and only one dust storm occurred. That one lasted one-half hour and was quieted by a 0.20 inch rain.

Row crops are making fair growth except for the Sudan grass drilled on fallowed land which is beginning to burn. Field work consisted of rodweeding plots which were weedy and taking soil moisture samples.

Station visitors were Dr. R. C. Smith and D. A. Wilbur of the Entomology Department, Kansas State College.

Maximum temperature, 101°; minimum, 63°; precipitation, 0.20 inch.

TUCUMCARI:

Much cloudy weather, moderate temperatures, and a shower of 0.35 inch following showers of the preceding week made this an excellent period for row crop growth. Precipitation for the year to date is still some 2 inches below normal, so range land and crop land will very soon require additional moisture.

Work included completion of late planting, chiefly drilled Sudan grass on increase land; a large amount of cultivation; thinning of plots; bagging of sorghum heads; and hoeing and mowing of weeds.

No contracts have been let for construction of the irrigation project, but during the past few weeks Reclamation Service survey crews have dotted the station and surrounding farms with flags. It now appears that a large portion of the station land will be below the ditch, although unfortunately the lawns, orchard, vineyard, and majority of trees are located too high to be benefited unless water is lifted a few feet with pump.

Maximum temperature, 96°; minimum, 63°; precipitation, 0.35 inch.

DALHART:

Work during the week has consisted chiefly of hoeing "goatheads" from row crops and tree plantings, installation of a rather complete set of weather instruments at an exposed location in the pasture (the instruments were furnished by the SCS and the installation was in cooperation with them), and completing plant counts for all experimental row plantings. Rather spotted local showers have fallen in the immediate area, but no rain of consequence has been received on the station since June.

The condition of the sorghums on the station is good. While all sorghums, except those planted the first week of June on fallow, are small because of the late planting, they have started rapid growth since about the middle of the week. Only one plot of corn shows tassels, and this is on fallow. The variety sorghums on fallow have

started heading during the past week. This makes a rather contrast with the sorghums on cropped land which were planted late in June because of the absence of surface moisture at the time that the variety block on fallow was planted. The cropped land sorghums range from 6 to 12 inches high.

Maximum temperature, 98°; minimum, 59°; precipitation, 0.16 inch.

BIG SPRING:

With the exception of a couple of light showers of 0.20 and 0.22 inch, respectively, the week has remained hot and dry. Most crops are continuing to make a good growth, although some of the early dates of sorghums are starting to burn.

Most of the varieties in the May 15 date of sorghums are heading, and bagging of these heads for seed has required considerable time. Other work has consisted of cultivating and hoeing. Cultivating the sorghums in the rotations and cooperative work for the last time was completed during the week. A number of varieties of grapes were picked; fair yields were obtained from some, but due to bird damage and hail the quality was not too good.

Maximum temperature, 100°; minimum, 69°; precipitation, 0.42 inch.

LAWTON:

A sharply restricted rain of 0.69 inch on the 27th was accompanied by cooler temperatures, all of which afforded a little temporary relief from the heat and drought that have persisted so steadily throughout the month of July. The total monthly precipitation of 0.96 inch was 1.99 inches below normal, and the deficit for the past seven months amounts to 6.46 inches. The July evaporation was 12.839 inches.

The highest temperature in July was 110°, and the average maximum for the month was 101.8°. The monthly mean of 87° was 5° above the long time average.

Naturally, the month has been disastrous to sorghums and cotton that were so severely handicapped in growth by diseases and insects during the early period of growth when weather conditions were more favorable.

Heading of grain sorghums continue to some extent. The shedding of cotton squares and young bolls on the underdeveloped plants has been heavy. The shedding peak to date occurred on July 30 and 31 following the rain of 0.69 inch on the 27th. The average percentage of shedding from July 11 to August 1 was about 37.

WOODWARD:

The three-week drought was broken by a dashing rain of 1.16 inches late in the evening of July 22. Most of this fell within a very short period and there was considerable run-off. Crops which were suffering severely have revived and are making very rapid growth. The Sudan grass and kafir planted just before the rain on the new long-time grass-crop rotation has emerged to a good stand. Since the rain, approximately 100 acres of Sudan grass and sowed kafir have been planted in preparation for spring seeding of grass.

Dr. C. E. Leighty and M. A. Bell of the Havre Station, are station visitors.

Maximum temperature, 100°; minimum, 63°; precipitation, 1.34 inches.